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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/866,800	05/30/2001	Kazuhiko Okawa	109657	5674

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EXAMINER	
MONDT, JOHANNES P	
ART UNIT	PAPER NUMBER
2826	

DATE MAILED: 02/11/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/866,800	OKAWA ET AL.	
	Examiner	Art Unit	
	Johannes P Mondt	2826	

-- The MAILING DATE of this communication appears on the c ver sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 November 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,5,6,20,21,27 and 28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,5,6,20,21,27 and 28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *9/26/01* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/21/2003 has been entered.

Response to Amendment

Amendment filed 11/21/2003, entered in view of said Request for Continued Examination, forms the basis of the present Official Action. In said Amendment Applicant has cancelled claims 3, 4, 7-19 and 22-26, substantially amended claims 1,2,5,6,20 and 21 (hence all previously non-cancelled outstanding claims), and added new claims 27 and 28.

Specification

The Specification is objected to for the following reason: with reference to Figure 1, section [0153] of the published patent application or page 23 of the written Specification as submitted at filing, characterizes P+ region 156 as the base of the NPN lateral bipolar transistor. However, said lateral bipolar transistor consists of collector 152

and emitter 154 with the base by definition in between said collector and said emitter, i.e., the base is the B^{11+} -doped portion of the P well together with that portion of the P well that materially connects said B^{11+} -doped region of said P well with said emitter 154. That P+ region 156 is electrically connected to said base through the electrically conductive path formed by contiguous P doped material is another matter. In conclusion: identification of the base of said NPN lateral transistor as P+ region 156 should be replaced by the identification, as the base of said NPN lateral bipolar transistor, of the B^{11+} - doped region in the P well and its surroundings within said P well. Amendment of the text of section [0153] is possible without introducing new matter, because the actual topography and topology of the device is in evidence at least through Figure 1 and the remainder of the description of the device of Figure 1.

Drawings

2. The drawings of ***Figures 1, 23, 24 and 28*** are objected to under 37 CFR 1.83(a) because they fail to show all three isolation regions in the relevant embodiments of the final structure, while only two isolation regions are illustrated in Figure 1 (first embodiment). The objection to the drawings will not be held in abeyance.

3. While ***Figure 22*** does show said third isolation region, said Figure 22 does not show the numerals identifying the (a) first isolation region as a definite, separate region (a possible selection is that part of region 300 that is most to the left in Figure 22); (b) the second N-type diffusion region (should be numeral 156); (c) the first N-type diffusion region (should be marked 114).

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. ***Claims 20-21*** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contain subject matter not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention.

Through independent claim 20 the claims contain subject matter not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Specifically, the newly added limitation "a second P-type diffusion region which is isolated by a third N-type diffusion region from the second N-type diffusion region; a silicide layer formed on a surface of the semiconductor substrate excluding the first to third isolation regions" is not only not supported by the Figure pertaining to the relevant (third) embodiment, i.e., Figure 28, but in the written description no directions are provided as to how an N-type diffusion region can isolate another N-type diffusion region, because generally electricity can flow uninhibited from one N-type diffusion region serving as source or drain region of a MOS transistor to another N-type diffusion region unless another isolation region intervenes, in which case the function of isolation is carried by the

isolation region and not by the said N-type diffusion region. In this regard it is noted that no specific doping concentration ratio of said N-type diffusion regions is either taught or suggested in the Specification.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. ***Claims 20-21*** recite the limitation "the first to third isolation regions" in line 21 of claim 20. There is insufficient antecedent basis for this limitation in the claim, because no "third isolation region" is introduced in claim 20 prior to its recitation.

Allowable Subject Matter

8. ***Claims 1, 2, 6, 7, 27 and 28*** are allowed subject to removal of the grounds for objection to the Specification and the Drawings in as much as they pertain to the first embodiment. The following is a statement of reasons for the indication of allowable subject matter: Neither Natori nor Wolf '3-7 nor Wolf '5-3 teach or suggest a silicide layer connecting a "ground terminal connected to the second N-type diffusion region and a P-type diffusion region, while Chen et al (5,166,089) as cited previously (see PTO-892 of first Non-Final Action mailed 3/11/02) do not teach the first P-type diffusion region (on the side of the MOS transistor in relation to the isolation region closest to the latter, as opposed to on the opposite side as shown in Figure 2).

Similarly, subject strictly to the removal of the grounds for the rejections under 35 USC § 112, first and second paragraph: ***claims 20 and 21*** do contain allowable subject

matter through claim 20, because neither Natori nor Wolf '3-7 nor Wolf '5-3 teach or suggest a silicide layer connecting a "ground terminal connected to the second N-type diffusion region and a P-type diffusion region, while Chen et al (5,166,089) as cited previously (see PTO-892 of first Non-Final Action) do not teach the first P-type diffusion region (on the side of the MOS transistor in relation to the isolation region closest to the latter, as opposed to on the opposite side as shown in Figure 2).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Johannes P Mondt whose telephone number is: 703-306-0531 BEFORE February 4, 2004; and 571-272-1919 AFTER February 4, 2004. The examiner can normally be reached on 8:00 - 18:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan J Flynn can be reached on 703-308-6601 BEFORE February 4, 2004, and on 571-272-1915 AFTER February 4, 2004. The fax phone number for the organization where this application or proceeding is assigned is 703-308-5399.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

JPM
February 2, 2004

NATHAN J. FLYNN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800